Accredited Africa Training Institute for Capacity Development

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COURSE BROCHURE

Meteorological Message Coding and Decoding

Physical, Mathematical, Computer and Life Sciences / Environmental Sciences

Unit Standard 246541 · NQF Level 5 · 18 Credits · 15 Days

COURSE OVERVIEW

This course equips learners with the skills to accurately code and decode meteorological messages using standard formats such as SYNOP, METAR, TAF, and SIGMET. Participants will gain the competence to interpret weather data for aviation, maritime, and general forecasting purposes, ensuring compliance with World Meteorological Organization (WMO) and International Civil Aviation Organization (ICAO) standards.

Category	Physical, Mathematical, Computer and Life Sciences
Subfield	Environmental Sciences
Unit Standard	246541
Accreditation	SAQA Accredited · NQF Level 5 · 18 Credits
Duration	15 days
Training Method	Online, On-Campus, In-House
Certificate	Issued via AATICD LMS — verifiable online

LEARNING OUTCOMES

- Apply the correct coding formats for SYNOP, METAR, TAF, and SIGMET messages according to WMO and ICAO standards.
- Decode meteorological messages accurately to extract essential weather parameters such as temperature, pressure, wind, visibility, and cloud cover.
- Analyze coded messages to identify weather phenomena, trends, and potential hazards.
- Evaluate the completeness and consistency of meteorological reports to ensure data integrity.
- Demonstrate proficiency in using reference manuals and coding tables to verify coded information.

WHO SHOULD ATTEND

- This course is designed for meteorological technicians, weather observers, aviation weather specialists, and other professionals who need to encode or decode meteorological reports as part of their duties.

COURSE OUTLINE

Day 1: Introduction to Meteorological Messages

- Overview of meteorology and weather observations
- Introduction to the World Meteorological Organization (WMO) standards
- Types of meteorological messages and their applications
- Basic structure: header, body, and end markers
- Importance of coding for data exchange and safety

Day 2: METAR Code Fundamentals

- METAR structure: report type, station ID, date/time
- Wind direction and speed encoding (KT, MPS, G, VRB
- Visibility and runway visual range (RVR) coding
- Present weather phenomena codes (e.g., RA, SN, FG
- Cloud cover and ceiling height (FEW, SCT, BKN, OVC
- Temperature, dew point, and pressure (QNH) groups

Day 3: Advanced METAR Decoding

- Recent weather (REWG, RERA) and wind shear (WS
- Sea-level pressure (SLP) and pressure tendency
- Supplementary information: sunshine, precipitation amounts
- Trend forecasts: NOSIG, BECMG, TEMPO
- Remarks section: icing, turbulence, volcanic ash
- Practical decoding exercises with real METARs

Day 4: METAR Encoding

- Encoding wind groups: direction, speed, gusts, variable
- Encoding visibility and RVR
- Encoding present weather: intensity, proximity, descriptors
- Encoding cloud cover and vertical visibility
- Encoding temperature, dew point, and QNH
- Encoding remarks and trend forecasts
- Practical encoding exercises

Day 5: TAF Code Fundamentals

- TAF structure: report type, station ID, issue time, valid period
- Wind, visibility, weather, and cloud groups
- Change indicators: FM (from), TEMPO (temporary), BECMG (becoming
- Probability groups: PROB30, PROB40
- Additional groups: icing, turbulence, QNH
- Differences between METAR and TAF

Day 6: Advanced TAF Decoding and Encoding

- Decoding TAFs with FM, TEMPO, and BECMG combinations
- Encoding TAFs with time periods and changes
- Optional groups: icing, turbulence, wind shear
- Remarks section: volcanic ash, cumulonimbus
- Practical decoding and encoding exercises

- Quality control of TAF messages

Day 7: SPECI and Special Messages

- SPECI criteria: significant changes in wind, visibility, weather
- SPECI encoding: same format as METAR with SPECI indicator
- SIGMET: severe weather warnings for aviation
- AIRMET: moderate weather phenomena
- Volcanic ash advisories (VAA) and tropical cyclone advisories (TCA
- Practical exercises with SPECI and SIGMET

Day 8: SYNOP and Ship Reports

- SYNOP structure: section 0, 1, 2, 3, 4, 5
- Station identifier, date/time, wind, pressure, temperature
- Cloud types and amounts, present and past weather
- Ship and buoy reports: SHIP, BUOY
- CLIMAT messages for monthly climate data
- Practical decoding of SYNOP examples

Day 9: Upper Air and Radiosonde Data

- TEMP codes: mandatory and significant levels
- PILOT codes for upper wind observations
- Temperature, dew point, wind direction and speed
- Geopotential height and pressure levels
- Radiosonde data coding and decoding
- Practical exercises with TEMP and PILOT messages

Day 10: Satellite and Radar Data

- Satellite message codes: cloud imagery, water vapor
- Radar data codes: precipitation type and intensity
- Cloud top height and atmospheric motion vectors
- Integration of satellite and radar data with surface observations
- Practical decoding of satellite and radar messages

Day 11: Aviation Weather Messages (TAF, METAR, SIGMET) Integration

- Integration of METAR, TAF, and SIGMET for aviation
- Flight planning using coded messages
- Decoding NOTAMs and SNOWTAMs
- Use of weather radar and satellite data in aviation
- Practical case studies: route planning, diversions

Day 12: Marine and Coastal Weather Messages

- Marine forecast codes: WMO and national variants
- Wave height, swell direction, and period coding
- Sea state and ice accretion codes
- SHIP and BUOY report decoding
- Practical exercises with marine weather messages

Day 13: Quality Control and Error Detection

- Common errors: format, range, consistency
- Quality control procedures: manual and automated

- Use of validation software and algorithms
- Correcting errors and reissuing messages
- Case studies of error detection and correction

Day 14: **International Standards and Regulations**

- WMO Publication 306: Manual on Codes
- ICAO Annex 3: Meteorological Service for International Air Navigation
- South African Weather Service regulations
- Recent changes and updates to coding standards
- Compliance and audit requirements

Day 15: **Review, Assessment, and Practical Integration**

- Review of all message types and codes
- Comprehensive coding and decoding exercises
- Scenario-based assessments: aviation, marine, synoptic
- Final assessment: encode and decode a set of messages
- Course wrap-up and certification

ASSESSMENT & CERTIFICATION

Delegates are assessed through exercises and a final test. A mark of **50% or above** earns an **AATICD Certificate of Completion**, issued digitally with a unique verification code. This course carries **18 NQF credits** at **NQF Level 5**.

PRICING (PER DELEGATE, EX-VAT)

Delegates	Training Method	Price per Delegate	Total
1	Online	R 51,000.00	**R 51,000.00**
1	In-House	R 66,400.00	**R 66,400.00**
1	On-Campus (Pretoria)	R 76,500.00	**R 76,500.00**

UPCOMING SESSIONS

Start	End	Method	Venue
04 Aug 2026	24 Aug 2026	On-Campus	Mauritius
05 Aug 2026	25 Aug 2026	On-Campus	Cape Town, South Africa
06 Aug 2026	26 Aug 2026	On-Campus	Dubai, UAE
06 Aug 2026	26 Aug 2026	On-Campus	Lagos, Nigeria
07 Aug 2026	27 Aug 2026	On-Campus	Pretoria, South Africa
07 Aug 2026	27 Aug 2026	On-Campus	Johannesburg, South Africa
10 Aug 2026	28 Aug 2026	On-Campus	Durban, South Africa
10 Aug 2026	28 Aug 2026	On-Campus	Cape Town, South Africa

Contact us if no suitable date is listed — on-demand sessions can be arranged for groups.

HOW TO GET A QUOTE OR APPLY

1. **Get an instant quotation online:** visit **www.aaticd.co.za**, open the page for this course (Unit Standard 246541) and click **Get A Quote / Apply**. Select your training method and number of delegates — your quotation is generated immediately and emailed to you with the course brochure attached.
2. **Apply by email:** send the course title, your preferred training method (Online, In-House or On-Campus Pretoria), the number of delegates and your preferred dates to **apply@aaticd.co.za** — our team will reply with a formal quotation.
3. **Apply by phone or WhatsApp:** call **+27 12 004 8389** or WhatsApp **+27 65 077 6310** and we will prepare your quotation and reserve your seats.
4. **Confirm your booking:** accept the quotation and settle the invoice. As soon as payment is confirmed your delegates are enrolled and receive their AATICD LMS login details by email, along with joining instructions for their chosen training method.

Group discounts apply automatically — the more delegates you enrol, the lower the price per delegate. No payment is required to request a quotation.

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